

## CATTLE DISEASE.

JUNE 18, 1860.—Ordered to be printed.

Mr. BUTTERFIELD, from the Committee on Agriculture, submitted the following

### REPORT.

*The Committee on Agriculture, instructed by a resolution of the House of Representatives "to inquire respecting the novel and alarming malady now prevailing among the cattle in certain localities of the United States, known as pleuro-pneumonia, that they consider whether the infection has, or is likely to, become so general as to become a subject of national concernment, and to recommend any action which it may be competent and expedient for Congress to take with a view to arresting the ravages of so destructive a disease," report:*

That, having solicited the coöperation of the United States Agricultural Society, your committee have been furnished with a large amount of reliable information from the files of that institution, clearly showing the terrible ravages which this cattle distemper, known as "*pleuro-pneumonia*," has inflicted in some portions of the commonwealth of Massachusetts, and also giving reason to apprehend that it has been introduced into several other States, wherever any animal has been removed after coming in contact with one attacked with this contagious and fatal disease.

The subject, already of sufficient importance to receive the attention of the legislatures of several States, (that of Massachusetts having been convened in extra session in order to consider it,) is one in which every portion of the country has a large interest at stake. Although the legislatures of those States in which distemper has appeared are using the most praiseworthy exertions to restrain its ravages, and, if possible, to extirpate it, there is reason to fear that it may sweep over the entire country, unless timely precautions are taken to arrest its progress. This destruction of the herds of the United States—our "cattle on a thousand hills"—would seriously affect "the general welfare" of the country, and the distemper has already become a matter of national importance. Every portion of the Union is directly interested.

The following returns, taken from the last census, show the number

of neat cattle in the United States in 1850, and also the estimated value of the dairy products of that year:

STATES AND TERRITORIES.	NEAT CATTLE				BUTTER AND CHEESE.		
	Milch cows.	Working oxen.	Other cattle.	Total neat cattle.	Butter.	Cheese.	Total.
					<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Alabama .....	227,791	66,961	433,263	728,015	4,008,811	31,412	4,040,223
Arkansas .....	93,151	34,239	165,320	292,710	1,854,239	30,088	1,884,327
California .....	4,280	4,780	253,599	262,559	705	150	855
Columbia, District of .....	813	104	123	1,040	14,872	1,500	16,372
Connecticut .....	85,461	46,988	80,226	212,675	6,498,119	5,363,277	11,861,396
Delaware .....	19,248	9,797	24,166	53,211	1,055,308	3,187	1,058,495
Florida .....	72,876	5,794	182,415	261,085	371,498	18,015	389,513
Georgia .....	334,223	73,286	690,019	1,097,528	4,640,559	46,976	4,687,535
Illinois .....	294,671	76,156	541,209	912,036	12,526,543	1,278,225	13,804,768
Indiana .....	284,554	40,221	389,891	714,666	12,881,535	624,564	13,506,099
Iowa .....	45,704	21,892	69,025	136,621	2,171,188	209,840	2,381,028
Kentucky .....	247,475	63,244	442,763	752,512	9,947,523	213,954	10,161,477
Louisiana .....	105,576	54,968	414,798	575,342	683,069	1,957	685,026
Maine .....	133,556	83,893	125,890	343,339	9,243,811	2,434,454	11,678,265
Maryland .....	86,856	34,135	98,595	219,586	3,806,160	3,975	3,810,135
Massachusetts .....	130,099	46,611	83,284	259,994	8,071,370	7,088,142	15,159,512
Michigan .....	99,676	55,350	119,471	274,497	7,065,878	1,011,492	8,077,370
Mississippi .....	214,231	83,485	436,254	733,970	4,346,234	21,191	4,367,425
Missouri .....	230,169	112,168	449,173	791,510	7,834,359	203,572	8,037,931
New Hampshire .....	94,277	59,027	114,606	267,910	6,977,056	3,196,563	10,173,619
New Jersey .....	118,736	13,070	80,455	211,261	9,487,210	365,756	9,852,966
New York .....	931,324	178,909	767,406	1,877,639	79,766,094	49,741,413	129,507,507
North Carolina .....	221,799	37,309	434,402	693,510	4,146,290	95,921	4,242,211
Ohio .....	544,499	65,381	749,067	1,358,947	34,449,379	20,819,542	55,268,921
Pennsylvania .....	530,244	61,527	562,195	1,153,946	39,878,418	2,505,034	42,383,452
Rhode Island .....	18,698	8,139	9,375	36,262	995,670	316,508	1,312,178
South Carolina .....	193,244	20,507	563,935	777,686	2,981,850	4,970	2,986,820
Tennessee .....	250,456	86,255	414,051	750,762	3,139,585	177,681	3,317,266
Texas .....	217,811	51,285	661,018	930,114	2,344,900	95,299	2,440,199
Vermont .....	146,128	48,577	154,143	348,848	12,137,980	8,720,834	20,858,814
Virginia .....	317,619	89,513	669,137	1,076,269	11,089,359	436,292	11,525,651
Wisconsin .....	64,339	42,801	76,293	183,433	3,633,750	400,283	4,034,033
Minnesota Territory .....	607	655	740	2,002	1,100	.....	1,100
New Mexico Territory .....	10,635	12,257	10,085	32,977	111	5,848	5,959
Oregon Territory .....	9,427	8,114	24,188	41,729	211,464	36,980	248,444
Utah Territory .....	4,861	5,266	2,489	12,616	83,309	30,998	114,307

These returns show that there were in the United States, in 1850, eighteen millions three hundred and seventy-eight thousand neat cattle. Since that time the number has increased, until it is estimated that it will now exceed twenty-two millions, and the value of the animals has unquestionably increased in a ratio much greater than the number. The following estimates were submitted to the legislature of Massachusetts, at the commencement of its extra session, by Governor Banks :

"The number of milch cows returned to the census bureau for 1850 was over six million, and the number of working oxen was nearly a million and three-quarters. The value of butter, cheese, and milk not used for butter or cheese, returned in 1850 as a portion of the agricultural product, according to the estimate of Professor Tucker, exceeded eighty million dollars. To this must be added an equal sum, as the value of cattle slaughtered for the market, and the value of the labor of nearly a million yoke of working oxen at the present

time, (estimating their labor for a year at twenty dollars per yoke,) and the aggregate value of this yearly product exceeds one hundred and eighty million dollars. There is but one agricultural product of equal importance—that of Indian corn.

“To the aggregate thus stated must be added the value of the cattle themselves, which, estimated at twenty dollars per head, amounts to nearly three hundred and seventy million dollars. Thus, upon the basis of the census of 1850, this interest involved a value of product and property equal to five hundred and forty million dollars. The average increase in ten years may be safely estimated at twenty per centum, and this would make the same values equal, for the present year, to six hundred and forty million dollars. But these figures very imperfectly represent the interest of the American people in this gigantic industrial product. How far it enters into the employment of the great majority of persons, how many millions are dependent upon it for the luxuries and necessities of life, to what extent it contributes, indirectly, to public health and enjoyment, and how large a part it forms of the sound and reliable business of the country, are considerations which naturally occur to the mind of every intelligent person.”

The committee do not as yet feel authorized to advise legislation on the part of the general government. Some believe that the disease is less terrible than has been represented, and insist that it must yield to remedial agencies, aided by local quarantine regulations, while others represent that nothing will answer to check its progress but the persistent policy of *extermination*, in which case, “the general welfare” might demand an appropriation from the national treasury in order to indemnify the owners of cattle thus destroyed. It seems, however, eminently proper that a historical sketch of the disease and its diagnosis, as it now exists in the New England States, should at once be made known to the whole country.

#### HISTORICAL SKETCH OF THE DISEASE.

The earliest record we have of any malignant epidemic or contagion among cattle is recorded in Exodus, chapter ninth, second verse: “If thou refuse to let them go, behold the hand of the Lord is upon thy cattle which is in the field; there shall be a very grievous murrain. To-morrow the Lord shall do this thing in the land. And the Lord did that thing on the morrow, and all the cattle of Egypt died.”

During the siege of Troy vast numbers of the cattle of the Greeks, and of the Greeks themselves, are said to have perished by a pestilence. Homer, the father of Grecian poetry, who is supposed to have written about 900 years before Christ, in attributing the disorder to the arrows of Apollo, might have meant only to suggest that the cause of these malignant diseases was in the air; and thus, perhaps, brutes receive the contagion first, because their sense of smell is more acute than that of the human being.

Plutarch tells us that during the reign of Romulus a pestilence, after destroying the fruits of the earth and the cattle, swept off many

of the Romans; and Livy, speaking of another visitation of the pest, says that the consuls had the greater difficulty in raising their recruits, because the plague which the year before had raged among the horned cattle had then broken out among the men. Virgil, who wrote about fifty years before Christ, gives, in his "Georgics"—a poem containing many good agricultural precepts—a long history of the murrain as it devastated some of the Roman farms.

The first writer who mentions what may be considered a distemper of similar type to that now raging in New England is Lucretius, who gives the symptoms and the mode of treatment adopted by the ancient Romans, which consisted principally in separating the diseased cattle from the herd and paying the closest attention to cleanliness. About the time of Constantine, Severus Sanctus, a Christian Roman poet, wrote an elaborate account of a terrible malady then raging among the cattle throughout the emperor's dominions, which European writers of the last century consider to be identical with the distempers that then raged in England, Holland, Sweden, and elsewhere on the Continent. [The work of Severus was translated in Holland in 1715, and the suggestions made in it were acted upon in the treatment adopted by the commissioners of the various governments of Europe.]

The distemper appeared in England just before the great plague in 1665, and was supposed by some to be analogous to that epidemic in the human species, and attributable to the same atmospheric and climatic causes. It spread through Prussia and Holland, where its violence was increased by neglect in regard to properly disposing of the dead, so that a law was enacted making it a crime punishable with death to neglect to bury or burn all cattle that should die or be destroyed. Every country in Europe suffered from its ravages, which continued to be objects of terror until the establishment of veterinary schools. In some places the symptoms differed from those exhibited in others; and it is stated that the distemper now destroying the cattle of New England is very different in its diagnosis from the *rinder peste*, or steppe murrain of the steppes of the Ukraine. But of whatever nature this distemper was, and whether contagious or epidemic, it was eccentric. Generally, it would cease, in a great degree, towards the approach of summer. During one or two summers, in the twelve years that it raged, it seemed to have altogether disappeared; but at the approach of winter it broke out afresh, sometimes in districts, the cattle of which it had previously thinned; at other times in places which had hitherto escaped its fury, and very distant from those in which it had seemed gradually to die away. It prevailed most generally and was most fatal towards the latter part of the winter. February and sometimes March were destructive months. There was also a strange caprice about it. It would select its victims here and there. It would carry off half the cattle in every dairy round a certain farm and not touch a single beast there; but six months afterwards it would return, and pounce upon this privileged spot, and not leave one animal alive. There were other instances in which, although it attacked the cattle on a certain farm, it readily yielded to the power of medi-

cine, or to that of nature, and not one in a dozen was lost; while on a contiguous farm, the soil, the produce, and the management being apparently the same, not one in a dozen was saved.

The malady next appeared in England in 1714, when more than three-quarters of all the stock in some sections perished. The government at an early day appointed Thomas Bates, Fellow of the Royal Society, a commissioner to examine into the nature of it, and suggest a remedy. In his report he made the following proposals:

1. That all such cows as are now in the possession of the Messrs. Ratcliff, Rufford, and Pullen, be bought, killed, and burnt; or, at least, that the sick be burnt; and the sound kept and secured on the grounds where they now are, that such of them as sicken or die of this distemper may be burnt.

2. That the houses in which those sick cows have stood be washed very clean, and then smoked by burning pitch, tar, and wormwood, and be kept three months at least before any other cows are put into them.

3. That the fields where these sick cows have grazed be kept two months before any other cows are suffered to stand or graze therein.

4. That the persons looking after such cattle as are ill should have no communication with those that are well.

5. That the same method be observed if any other cow-keepers should get this distemper among them; and that they all be summoned and told that as soon as they perceive any of their cows to refuse their feed, or have any other symptoms of this distemper, that they immediately separate them from their others, and give notice to such persons as the lords justices shall appoint, that they may be burnt; and that the places where they stood or grazed to be ordered as above.

6. That the cow-keepers be required to divide their cows into small parcels of not more than ten or twelve in a field together; and that they be allowed such satisfaction for complying with these proposals as the lords justices shall think fit.

The Lords Chief Justices of England received orders to comply with these proposals, and to allow two pounds sterling for every sick cow which was killed. In the course of a few months the disease increased to such an extent that the number of cattle to be burned was so great that the order could not be executed, and it was therefore deemed proper to bury them in a deep pit, covering them with lime. But in a short time the owners of cows grew careless in burying the cattle, and the poisonous effluvia from the shallow graves caused a great increase of the disorders, so that the commissioner was obliged to make another report on the subject, which had the effect of causing greater circumspection, so that in about three months the disease disappeared, although on the continent of Europe it was not entirely eradicated for three years. The loss to the farmers in England alone was about one hundred and twenty-five thousand dollars.

In 1743 or '44, the distemper again raged on the continent, and an English farmer imported two calves from Holland, which introduced the infection—exactly, it may not be amiss to state, as it has recently been introduced from Holland into Massachusetts. Starting slowly at



first, but more rapidly as more means for its propagation were offered, it spread over the length and breadth of the land, destroying hundreds of thousands of cattle, and continuing its devastating effects with almost unmitigated severity down to 1754-'55. Notwithstanding the deep and painful interest which this disease excited, and the efforts made by the government to stay its ravages, it was ascertained by one of the commissioners appointed to investigate the matter that in Nottinghamshire alone 40,000 head of cattle perished in six months, and in Cheshire upwards of 30,000 in the same space of time.

"By a special act of Parliament orders were given:

"1st. For the killing of all the infected animals, and burying them entire with the skins on, 'slashed from head to tail,' that they might not be used for the purposes of the manufacutrer.

"2d. For the burning of all the hay and straw used about the animals.

"3d. For the cleaning and fumigating of the sheds, etc., and for no sound cattle to be put in them for two months after the removal of the diseased.

"4th. For no recovered animal to be allowed to go near others for a month after its convalescence.

"5th. For no diseased cattle to be driven to fairs or markets, nor for the flesh to be used for dogs, &c.

"6th. For no healthy cattle to be removed from a farm where the disease had prevailed in less than a month after its disappearance.

"And, lastly, orders were given for the notice of an outbreak to be immediately sent by the farmers to the proper authorities."

In one year, the third of the existence of the disease, about six hundred and seventy-five thousand dollars were paid out of the public treasury as a recompense for the cattle killed according to the prescribed orders. During the year 80,000 head of cattle were killed because more or less infected, and nearly double that number died of the disease. The prompt action of the government, although it did not eradicate the disease, yet much diminished its ravages, and undoubtedly shortened the period of its sojourn in England.

The distemper has since appeared at different times in almost every part of Europe, where (it is stated) its ravages have been fearful. The course of treatment adopted seems to have embraced the triple policy of slaughter, isolation, and inoculation, according to the condition of the animals infected or exposed. The loss of cattle by slaughter and by death in all these counties has been alarming, and the burdens upon the treasuries consequent upon the plan of compensation very great.

Holland appears to remain the headquarters of the distemper, and in 1857 over 14,000 head of neat cattle were slaughtered in only forty-three villages of that country, producing lamentable distress.

In 1854, the distemper was introduced into South Africa by a Dutch bull, imported by a resident of Cape Town for the improvement of the native stock. In sixty days after the arrival of the animal he died. In the meantime the disease had been communicated to other cattle, and spread rapidly in all directions, jumping three hundred

miles at one time, in consequence of one of the tribe in the infected district driving a herd of cattle that distance. The disease extended along the entire coast, a distance of thirteen hundred miles, sweeping all the cattle before it, and destroying hundreds of thousands. Rev. Mr. Lindsey, a missionary of the American board, has just returned, and has furnished an account of the ravages of the distemper in South Africa. "Ah," said he to a cattle commissioner, "if it comes, it will take the heart out of many a strong man—they will wilt right down under it."

The distemper was introduced about the same time into Australia, but was extirpated by prompt and energetic action on the part of the authorities. It prevails at the present time in most European countries.

#### HISTORY OF THE DISEASE IN THE UNITED STATES.

In 1847, the distemper was introduced into this country from England, by a farmer in New Jersey, Mr. Thomas Richardson. He discovered it among his imported stock, and before other herds were exposed, knowing the malignant type of the disease, he immediately killed his whole stock, valued at \$10,000, a most noble act. He lately wrote to a gentleman in Massachusetts that the only way to get rid of the malady is to kill every herd which has been exposed. Some of the farmers in his neighborhood assert that the disease has been conveyed by moving the hay from a barn where the cattle were diseased.

On the 23d of May, 1859, the distemper was brought into Massachusetts by four cows, imported direct from Holland by Winthrop W. Chenery, of Belmont, about six miles from Boston. These cows were black, thick-skinned, large, and said to be great milkers. On landing they appeared hungry, thirsty and neglected, and one of them, it is said, had not been on her legs for twenty days. Two of these cows were so feeble that they had to be carted to Belmont. A few days after their arrival, on the 31st of May, one of the cows died. On the 2d of June a second died; and on the 30th of June a third. The fourth is now alive and doing well. In all, Mr. Chenery has within a year lost twenty-seven head of cattle, of other importations, then on his premises. The disease was not supposed contagious, and was attributed to local causes.

In June, 1859, three grade Dutch calves were purchased from Mr. Chenery by Mr. Stoddard, of North Brookfield; as they were being taken there one of the calves appeared to falter, and gave evidence of physical disability. The distemper with which the animal was affected was at once communicated to the cattle in the vicinity, and it has since raged there with fatal violence. A district about twelve miles square, from which, at this time last summer, large quantities of butter and cheese were made for the Boston market, is almost destitute of cattle.

The distemper began to extend its ravages, and in April, just prior to the adjournment of the legislature of Massachusetts, an act was

passed, appointing three commissioners, with authority to take such action as would, it was hoped, circumscribe and extirpate the disease. They were authorized and required to visit without delay several places in the commonwealth where the disease was known or suspected to exist, and were empowered to cause all cattle which had been diseased, or had belonged to diseased herds, to be forthwith killed and buried, and the premises where they kept cleansed and purified; to appraise in their discretion the value of the cattle killed which were apparently well, and certify to the State government the allowances made to the owners of the cattle respectively; and to communicate for publication the result of their observations and inquiries relative to the nature of the disease. It was also enacted that "any person who should knowingly disregard any lawful order or direction of said commissioners, or who should sell or otherwise dispose of an animal which he knows, or has good reason to suspect, has been exposed to the aforesaid disease, should forfeit a sum not exceeding five hundred dollars."

Governor Banks (the committee quote from his message) issued commissions, under the provisions of this act, to Richard S. Fay, esq., of Lynn, Paoli Lathrop, esq., of Hadley, and Hon Amasa Walker, of Brookfield. These gentlemen entered at once upon the performance of their duties. After some progress had been made, Mr. Fay, from the pressure of private engagements, withdrew from the commission, and the vacancy was supplied by the appointment of Dr. George B. Loring, of Salem, Mr. Lathrop, of South Hadley, acting as chairman. The commissioners have been assisted in their labors by Dr. Thayer, Dr. Dadd, Dr. Bates and other gentlemen of established reputation as veterinary surgeons.

From a detailed report of the operation of the commissioners under the statute, it appears that all suspected herds have been examined, and many cattle have been isolated by their order. Eight hundred and forty-two have been slaughtered, for which compensation has been allowed by the commissioners to the amount of \$20,432 83. No report, however, of allowances made to the owners of cattle has been received, and no money has been drawn under the statute, from the treasury. The appropriation of \$10,000 made by the legislature was very soon exhausted. The labors of the commissioners would have been once brought to a close, but the distemper continuing to spread, and the public mind becoming more excited in the districts where its ravages were chiefly confined, and where it seriously affected, and seemed to threaten the destruction of the principal occupation and support of the people, many generous and public spirited citizens, representing different business interests, voluntarily subscribed to a fund which was intended to enable the commissioners to continue their work, notwithstanding the failure of the appropriation, and to guaranty all parties concerned against loss, in case the legislature should fail to recognize and provide for the unauthorized expenditure of money.

Subscriptions to the amount of nearly \$20,000 were at once made, and the commissioners, under the protection of this guaranty, made some



further progress. But the disease had spread over a larger territory than was at first supposed. More definite instructions from the legislature as to the course to be pursued were desired. It was believed that more stringent regulations than those allowed by the act of April 4, 1859, were required, and that additional appropriations from the treasury might be indispensable.

On the 18th of May, the commissioners made a formal request that an extra session of the legislature should be called. This request was supported by a petition of a committee of the State Board of Agriculture, by several members of the board, and by many influential and honorable citizens of different parts of the commonwealth. On the 24th day of May, the proclamation was issued for a session of the legislature for the consideration of this special subject, and the members assembled on the 30th of May. They appointed committees, who at once commenced examining diseased herds, and will doubtless take efficient measures to arrest the progress of the distemper (if it be possible so do) by legislative enactments.

Meanwhile the distemper has been carried from Massachusetts into Maine, New Hampshire, Connecticut, New Jersey, and even into Michigan—every case easily traced to the cattle imported from Holland. The price and value of stock in the neighborhoods where it prevails have been decreased, and, as a consequence, drovers have purchased cattle in those neighborhoods, and driven them far away for sale.

#### THE DIAGNOSIS OF THE DISEASE.

The official surgeons of the Massachusetts commissioners, E. F. Thayer, V. S., and George Bates, M. D., prepared the following diagnosis of the disease. It differs from that of the European steppe-murrain:

The symptoms of the disease called pleuro-pneumonia, describe by English authors, do not essentially differ from those of the animals affected by the disease in this country.

Among the signs or symptoms are these: If the animals are at pasture at the commencement of the disease they will be found early in the morning separated from the herd, with arched backs, coats staring, and refusing to eat; while, as the day advances, they will join the rest and appear to be in usual health.

A slight but husky cough will be occasionally recognized, and at times the breathing will be increased, as if the animal had made some extra exertion; and in milch cows there will also be a diminished amount of milk.

As the disease progresses the cough becomes more frequent and husky; the respiration is humid; the pulse increased and somewhat oppressed; the appetite diminished; rumination suspended; bowels constipated; surface of the body and limbs cold; the skin rigid and almost immovable over the ribs; the animal, on pressure upon the spine, flinches and is unable to bear pressure or percussion on the sides of the chest or costal regions.

In more advanced stages the respiration is difficult, labored, and painful. The animal frequently lies down, and when standing the head is protruded, the mouth covered with frothy saliva, the muzzle cold, and the aspect spiritless and haggard.

On striking or percussing the affected side a dull or dead sound is usually elicited to a greater or less extent; but this will depend upon the extent to which the lung has become consolidated and the presence or absence of fluid in the cavity of the chest. On applying the ear to the sides of the chest one or the other is found to be affected; sometimes, though rarely, both are implicated. When applied in the region of the diseased part the ear fails to perceive the low, rustling murmur of healthy lungs, and detects a crepitating sound or rattle, which, as the case advances toward an unfavorable termination, becomes duller and at last is altogether inaudible.

An examination of animals which have died of the disease called pleuro-pneumonia will present various appearances. The lungs of the same animal will show all the different stages of the disease; red hepatization, dark spots, and an effusion of serum.

The ærial poison, whatever may be its nature, being carried by the ordinary process of respiration into the air cells of the lungs, exerts its baneful influence upon the blood as it circulates through the capillaries.

The amount of the poisonous matter received at each inspiration is not sufficient to interrupt at once the functions of the lungs, for were this the case death would speedily take place from asphyxia. We have constant proofs that the disease is partial in its attack and insidious in its nature, making its way stealthily. Very often it is unobserved until it has made great ravages on the constitution of the animal.

The component parts of the lungs are held together by an interstitial areolar tissue, of very minute net work, and when the red corpuscles of the blood escape from the capillaries by the rupture of their coats, this texture retains these bodies in its meshes and assists in producing the dark color of the isolated patches.

This color depends in part, also, on the distending of many of the capillaries, almost to bursting, by the red corpuscles. The united pressure of the overloaded vessels and of the infiltrated interlobular and interstitial tissues compresses the air cells, and prevents the entrance of the atmospheric air into them; hence the absence in advanced stages of pleuro-pneumonia of the respiratory sound in the affected parts.

The extreme dark shade of the color of some of the patches proceeds from the same cause; for the pigment of the accumulated corpuscles, in consequence of the exclusion of the oxygen of the air from the cells, cannot be decarbonized. It is difficult to explain the precise changes which take place in the blood resulting from the operation of the ærial poison; but it appears that the vitality of the fibrin is interfered with, and that this with the albuminous constituents of the fluid, altered also in quality, is transuded from the capillary vessels, and finds its way into the areolar tissue of the lungs,

accumulating where this tissue exists in great abundance, in the interlobular spaces. This inordinate transudation seems to depend on a tendency in the blood to separate into its several constituents, arising probably from the diminished vital force of the fibrin, and an obstruction to the conversion of the albumen of the serum into fibrin. The fibrino-albuminous portion of the fluid is thus changed and probably augmented, and their exudation is a natural consequence of such condition.

The red corpuscles being in part deprived of the liquor sanguineous in which they float are retained in the capillaries, where they accumulate in unlimited number, and obstruct their passage and compress the air-cells which they surround, so as to stay the entrance of the air, and produce, as elsewhere stated, the dark colored spots which stud the lungs. It is these effusions and the obstructed condition of the vessels which gives bulk, increased weight and solidity to the lungs, and destroys their function as ærating organs.

The blocking up of the air-cells, vessels, &c., destroys these structures; and when this is partial, and of little extent, portions of the lung will become detached, and be enclosed in sacks formed by the adhesive stage of the subsequent inflammation.

This will also explain how it is that collections of pus and other morbid products are occasionally observed in post-mortem examinations of long-existing cases of pleuro-pneumonia.

It ought not, therefore, to be a matter of surprise, nor to cast opprobrium on veterinary science, that an affection which depends on an impoisoned atmosphere, and is associated with such extensive lesions of organs so essential to health, and which stealthily wends its way and saps the very vitals, should prove so destructive to life and likewise resist the most vigorous and scientific treatment.

#### THE DISEASE AND THE REMEDIES PROPOSED.

Although hundreds of cases have occurred from exposure, and not one without exposure, many agriculturists deny the contagious or infectious nature of pleuro-pneumonia. In this opinion they are backed by the editor of "The Journal of the Royal Agricultural Society of England," and by Mr. Horsfall, one of the most thorough of English dairyman and breeders. Professor Simonds, however, who was deputed by the three British agricultural societies to visit the whole of western Europe and report upon the cattle diseases which raged in the several countries, unqualifiedly declares this lung disease to be highly contagious, and, with the exception of a perfect sequestration of the farms infected, no remedy to be known as universally efficacious. Collet, a modern French author, speaks with even more dread of the pest, since he says this malady is the greatest scourge which could befall the farmer, being hereditary as well as contagious, and never disappearing from a country where it has become well established. In fact, he considers typhus or small-pox less to be dreaded than pleuro-pneumonia.

Dr. Lennig, one of the Massachusetts commissioners, states that he

believes the disease utterly incurable. Cases not treated are not always fatal. In favorable circumstances, 15 to 20 per centum would prove fatal; in other circumstances, from 90 to 95 per centum. He thinks the most economical and most effectual way to eradicate the disease is to kill every animal affected by it.

One ox, killed by order of the commission, had imparted the disease to twenty-three yoke of cattle; he looked well when he was killed, apparently in good condition for beef, but had a slightly "pinched" appearance; he was killed because it was known he had been exposed, and believed that he had imparted the disease to others; the general external appearance of the lungs was that of fair health. In the right lung was found a bunch about the size of a fowl's gizzard, and of the same color; it resembled decayed cheese, and was a little harder; this substance was entirely distinct from the other parts of the lungs, the disease having stopped there; nature appeared to have enclosed the disease there. Analogous cases had been found in the human system. He had no doubt the ox would have lived on, but whether it would have been healthy was another question. Whether the animal would communicate the disease to others was not known, and no observations in Europe threw any light upon that question. They found that a yoke of oxen had given the disease to one herd, and afterward, when the disease was in a chronic form, were taken to another herd, and did not communicate the disease. It is impossible to tell how soon the disease appears after it is taken.

In South Africa, in Russia, and in Holland, inoculation is used to stay the ravages of the cattle pests, but it is not thought by the veterinary surgeons that it would answer in the peculiar phase of the distemper now in this country. A communication having been not long since received from the Royal Agricultural Society of England from the Central Society of Agriculture in Belgium, requesting information on pleuro-pneumonia and the means adopted to combat the disease, having particular regard to the effects of inoculation—a reply was ordered to be made that inoculation was not found in Great Britain to rest on any scientific basis, and as such it has not received the sanction or support of the Royal Society.

In conclusion, the committee would seriously invite the attention of the House of Representatives, and of the country at large, to the facts presented. The immense pecuniary value of the cattle interest of the United States, far in advance even of the cotton, or of the wheat, or of the Indian corn crops, calls for prompt and efficient action in staying the ravages of the pestilence which threatens to destroy it, and to prostrate the great agricultural interest of the country.

Aware, however, of the impossibility of national legislation at the present time, when the character of the distemper is somewhat uncertain, the committee feel constrained to content themselves with the passage of the following resolutions:

*Resolved*, That, in view of the extent and magnitude of the national interests threatened by the fatal malady now prevalent among the cattle within several of the States of this Union, this House can not

but regard with special solicitude the efforts and measures adopted by the citizens and legislatures of the States immediately concerned, aimed at the speedy extirpation of so destructive a disease.

*Resolved*, That the Secretary of State be requested to open a correspondence with the consuls of the United States, in such countries as may have been visited by the malady in question, and to ascertain from them what sanitary measures have been adopted, and with what success; what steps have been taken to exclude animals coming from countries where the disease exists, and what medical treatment has been adopted.

*Resolved*, That the Secretary of the Interior be requested, in having the agricultural information and statistics collected during the next fiscal year, to obtain statements of the condition and progress of this disease, and the action and results of the State commissions; and that, should the disease not be checked, he be further requested to communicate the result of his inquiries to this House at the commencement of its next session.



